

## Safety and security during the transportation process of the Gamma Knife system using the SAFRAN program

The Gamma Knife is a highly sensitive and specialized medical device used in neurosurgery to treat brain tumors with precise radiation. Transporting this equipment, especially when it contains radioactive sources, requires strict adherence to safety and security protocols to prevent physical damage, radiation exposure, or security breaches.

This study evaluates the safe and reliable transport of the Gamma Knife system from Basra International Airport in Basra Governorate to Al-Sadr Teaching Hospital, using SAFRAN software. SAFRAN program is a project management tool widely used in critical industries such as nuclear energy and defense. It enables comprehensive risk assessment, scheduling, emergency planning, and real-time monitoring.

Using SAFRAN software to transport sensitive equipment such as the Gamma Knife system is no longer an option; it's a necessity dictated by safety and operational precision. By providing an integrated digital environment for planning and monitoring, the software increases transport efficiency and ensures the safe arrival of equipment without material or technical losses. With the continuous advancement of technology, the importance of such software solutions is expected to increase in supporting vital transport operations, especially in complex environments such as Iraq.

Keywords : Gamma Knife ,Safety, Transportation, SAFRAN, Emergency.

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### Country or International Organization

### Instructions

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